WILDLIFE PROGRAM - SPORTFISH SUBPROGRAM

As an arid state, Arizona has an amazing array of aquatic habitats, some significant portion of which are managed for sportfish and sportfishing opportunity. Many of our sport fishes are introduced to our state, so we manage those resources in balance with native aquatic wildlife. We manage our sportfishing resources in rather broad categories, reflecting cold water fisheries (trout) and warm water fisheries.

Arizona has 159 stream management reaches that are managed primarily for trout. Those areas have a combined length of 1470 miles. Four other stream reaches, totaling 34 miles, are managed primarily for warm water species and secondarily for trout. Presently, 64 lakes, comprising approximately 3,000 acres, are managed primarily for trout. Ten other lakes managed primarily for warm water fish also provide trout fishing opportunities, on approximately 30,000 acres.

Most trout harvested in Arizona are stocked as catchables, or as fingerlings that grow to harvestable size. Wild-spawned trout comprise a small percentage of the total harvest. In most Arizona coldwater streams, natural trout production is dependable but insufficient to meet angling needs. Hence, streams that are managed for recovery of native trout often require special regulations that may limit or preclude harvest. Trout generally do not reproduce in Arizona lakes.

Trout are managed under one of six concepts: Intensive Use, Basic Yield, Blue Ribbon, Wildfish, Featured Species, or Urban. Concepts are matched to specific fisheries to accommodate biological and social demands.

The Department manages about 354,800 acres of impounded water (lakes, reservoirs, ponds, and tanks) and 35,840 acres of flowing water (about 1400 linear miles) for warm water species. Management of these waters is based on biology, angler use, partnership commitments and needs, and social demands. Some waters have size limits for key preferred species, but most have liberal regulations to encourage angler use and harvest.

Only a few of the waters managed by the Department are owned or controlled by the State of Arizona. In Arizona, water storage projects sometimes pose challenges for fisheries management, and their primary purposes are for irrigation, hydroelectric power, flood control, and municipal uses. Sportfishing is rarely the principal purpose for the construction and operation of these impounded waters. We manage these warm water fisheries under concepts related to the type of water resources they occupy. Currently, we do not manage warm water fishes under a variety of management concepts, targeted at specific kinds of angling experiences. This is a framework we will explore.

Current Demand

Approximately 24 species of sportfish are sought by Arizona anglers (Table 1). Some species are heavily used, but others are under-used or ignored. In 2001, the Department licensed more than 379,000 resident and 40,000 non-resident anglers. Licensed resident anglers spent more than 5.1 million angler days on all waters in Arizona, including 1.4 million days on coldwater and 3.7 million days for warm water. Proximity of waters to the angler is of major importance. Not

surprisingly, nearly half the warm water fishing recreational days spent by Arizona residents were spent on large inland reservoirs nearest to metropolitan population centers.

Future Supply

The number of trout available to anglers will be maintained over the next two years, due to several factors. The hatchery production levels have stabilized, and are projected to meet the management requests for the next two years. The supply of wild trout (including native Apache and Gila trout) may also increase as coordinated habitat projects improve watershed, riparian, and instream habitat; and re-establishment of those native trout species proceeds. More anglers today understand and practice "catch-and-release," and trout that would otherwise have been removed from the fishery are returned to be caught more than once.

Angler use can be increased through improved access to waters currently unavailable to or under-used by warm water anglers. Through negotiation and partnership agreements, angler access may be secured to irrigation projects, municipal and urban lakes, and reservoir banks generally difficult for the shore angler to access. City lakes are more intensively managed in cooperation with municipal governments to provide more fishing opportunity in proximity to urban population centers through our aggressive Urban Fishing project.

Table 1. Sportfish found in Arizona.

Largemouth bass	Flathead catfish
Smallmouth bass	Bluegill
Striped bass	Redear sunfish
White bass	Yellow bass
Brown trout	Bullhead catfish
Rainbow trout	Yellow perch
Cutthroat trout	Walleye
Apache trout	Northern pike
Grayling	Carp
Crappie	Buffalofish
Channel catfish	Tilapia
Roundtail Chub	

Future Demand

Future demand for Arizona sportfishing was estimated from projected statewide population growth and angler use estimates. User days have fluctuated during the last 5 years particularly related to drought, fire risk, access restrictions due to fire risk, and other factors. License sales have rebounded after falling off sharply in 2001, an artifact of prolonged drought that began in 1998. Both the sale of trout (trout stamps and Class F) and warm water (Class A and Class F) fishing licenses have increased in 2005 and 2006, but remain below levels obtained in the latter 1990s. We estimate an increasing resident demand of 4.4 million warm water and 1.6 million coldwater user days will need to be accommodated through 2012. Some growth is anticipated in nonresident demand. The Commission and the Department are emphasizing recruitment and retention of anglers and hunters through active marketing, improvement of angling quality, and seeking to increase angling opportunity by identifying and overcoming barriers to participation in angling.

There is no indication from current license sales that angler use for most warm water fisheries will be saturated by 2012. However, effects of invasive species (golden alga) and access limitations during peak periods suggest that boating capacities on Arizona's inland reservoirs and the Colorado River will continue to be a challenge for this planning period. With a growing population, reservoirs and angling opportunities near growing urban population centers are

encountering increased pressure. Problems with limited access and competing recreational users are beginning to be reflected as angler frustration.

To address these challenges and to facilitate management of fisheries resources to meet angler demands, the Sportfish subprogram provides specific functions and leadership designed to satisfy angler wants and needs. The Subprogram is structured into several functional areas, including Sportfish Management, Hatcheries, Urban Fishing, Water Quality, and Aquatic Invasive Species. Leadership for the subprogram is housed in the Fisheries Branch in the Wildlife Management Division. The deployment of sportfish management is through six full service Regional Offices. The State Fish Hatchery System is principally designed to produce trout for sportfishing opportunity. The system includes six state fish hatcheries and a fish health laboratory. Five of the facilities are dedicated to raising trout, including the native Apache trout. Our single warm water hatchery facility raises sportfish, native fishes for conservation and research purposes, and amphibians to meet conservation needs. The subprogram's water quality function provides support to both fisheries management and to the hatchery system. The Urban Fishing function is a partnership with municipalities and is designed to bring "fishing recreation close to home" for residents of population centers. Lastly, the subprogram addresses aquatic invasive species as a threat to both sportfishing resources and native aquatic resources. Because many of our sport fishes are introduced to Arizona, and because we must maintain and improve the delicate balance of providing fishing recreation and conservation of Arizona's native aquatic wildlife, the subprogram collaborates in the execution of Arizona's Comprehensive Wildlife Conservation Strategy and Wildlife Action Plan, targeting conservation of aquatic wildlife habitat and conserving native aquatic wildlife while providing sportfishing opportunity. The Department's programmatic mission, goals, and objectives for the Sportfish subprogram are:

Sportfish Mission: Maintain, manage, and enhance (when appropriate and economically feasible) the quality, abundance, availability, and diversity of sportfishing opportunities; and disseminate information about Arizona's sportfish and sportfishing opportunities for present and future generations.

Sportfish Goals:

1. Maintain, manage, and enhance the quality, abundance, availability, and diversity of sportfishing opportunities while contributing to the recovery of Arizona's native fishes.

2. Develop integrated, watershed-based fisheries management approaches for watersheds in Arizona and identify reaches or zones for management of sportfishes and native fishes.

3. Increase public awareness of Arizona's sportfishing resources and opportunities.

4. Develop and implement actions to increase angler recruitment and retention.

Sportfish Objectives:

1. Annually, provide sportfishing opportunities to accommodate 1.6 million coldwater and 4.4 million warm water angler days by the year 2012.

2. Achieve a 70 percent satisfaction rating among Arizona's angling public (i.e. 70% of Arizona's anglers indicating they were satisfied with their angling experience over the past year).

SPORTFISH OPERATIONAL APPROACHES:

Common Approaches (Fish Management, Hatcheries, Water Quality, Urban Fishing, and Aquatic Invasive Species)

1. Develop biennial operational plans, annual work plans, annual reports, and other subprogram planning and reporting products necessary to plan, administer, implement and report on the sportfish subprogram. (3.A.4)

2. Provide comment and recommendations for projects that have the potential to impact sportfish populations, fishing opportunities, and fishing access. (1.A.5., 2.D.2.)

3. Assist in revising Commission Orders, rules and regulations, planning documents, permits, and annual performance reports relevant to sportfish management (1.A.3.)

4. Contribute information for internal documents, Technical Reports, popular and peer-reviewed literature. (2.A.3.)

5. Support and participate in outreach opportunities to promote sportfish and sportfishing opportunities. Support Expositions, sportsman's shows, wildlife fairs, and other high priority outreach opportunities to recruit, retain, and inform anglers. (1.B.1, 1.B.3, 1.B.8, 2.A.3.)

    i. This includes annual commitments to the Arizona State Fair, International Sportsman's Expo and the Arizona Outdoors Exposition.
    ii. Identify and participate in fairs and expositions, potentially including Coconino County Fair and Payson Wildlife Fair.

6. Seek internal and external grants and contract opportunities that support subprogram priorities. (3.A.6)

7. Provide information, education, and watchable wildlife opportunities for internal and external customers including utilization of partnerships and volunteers. (2.A.3, 2A.5, 2C.4, 2D.1, 2.D.2, 2.D.3, 4.A.8)

8. Conduct human dimension surveys (mail, telephone, and web based surveys) to determine angler preferences, use, desires, and/or opinions to assist in making management decisions and regulatory recommendations. (1.A.6, 1.B.2, 1.B.3, 2.C.1, 2.D.1)

9. Coordinate with other states, federal agencies, and non-governmental organizations to facilitate collaboration and compatibility of fisheries management approaches within the

Colorado River Basin, the Western United States, and across the United States. (1.A.2, 1.A.4, 1.A.5, 1.B.1, 1.B.6)

10. Coordinate with the Arizona Department of Agriculture regarding import, transport, and use of fishes and other aquatic animals for aquaculture. (1.A.3, 1.A.5)

11. Review and confer on issuance of special licenses and permits, as they affect sport fish resources and sport fishing. (1.A.3, 1.A.4, 1.A.6)

    i. This includes review and/or issuance of White Amur, Aquatic Stocking, Live Bait Dealer's, Scientific Collecting, Wildlife Holding licenses/permits, or other agency permits (i.e. Department of Agriculture aquaculture permits, etc).

12. Develop, revise, and implement plans to minimize impacts of aquatic nuisance (invasive) species on aquatic wildlife resources. (1.A.3, 1.A.4, 1.A.5)

FISH MANAGEMENT

1. Conduct fish population surveys targeting 62 waters, in accordance with standardized fish sampling protocol, to assess status and/or trends of priority fish populations. (1.A.1, 1.A.2, 1.A.5)

2. Conduct creel surveys targeting 11 waters, in accordance with standardized fish sampling protocol, to assess angler use, fish catch, and fish harvest at priority lakes. (1.A.1, 1.A.2, 1.A.5)

    i. This includes Show Low Lake, Scott Reservoir, Woodland Lake, Rainbow Lake, Becker Lake, Knoll Lake, Blueridge Reservoir, Arivaca Lake, Canyon Creek, Apache, Canyon and Saguaro lakes.
    ii. Locate funding and/or voluntary labor sufficient to conduct a creel survey at Roosevelt Lake.

3. Conduct limnological surveys targeting 23 waters to assess water, lake, suitability for stocking, and other environmental conditions. (1.A.1, 1.A.2)

4. Provide recommendations and priorities for aquatic weed control (weed harvesting or other control technologies) targeting 18 waters to improve habitat conditions and angler access at problematic lakes. (1.B.1, 1.B.2)

5. Restore Apache and Gila trout targeting 10 waters. (1.A.4, 1.B.1)

    i. This includes renovation of South Fork Little Colorado River, Stinky Creek, lower East Fork Little Colorado River, and Centerfire Creek; reintroduction of

Apache trout at West Fork LCR, Conklin Creek, Snake Creek, South Fork LCR, Stinky Creek, and Centerfire Creek complex and supplementing wild stock in Lower East Fork LCR and Hayground Creek.

ii. This includes supplemental stocking of Gila trout into Raspberry Creek; coordinating and assisting USFS renovation planning for Chitty Creek and West Fork of Oak Creek.

6. Improve warm water angler opportunity targeting six waters. (1.A.4, 1.B.1, 1.B.3)

    i. This includes evaluating the effectiveness of stocking black bass into Apache, Canyon, and Saguaro lakes as a management response to impacts of Golden Alga, and monitoring and evaluating lake environmental conditions to determine if particular environmental factors may trigger Golden Alga toxin outbreaks. This activity will be conducted in cooperation with Research Branch.
    ii. This includes evaluating protected slot limit at Alamo and/or Roosevelt lakes.
    iii. Stock approved warm water fish species into suitable waters.

7. Develop cooperative reporting procedures with bass fishing tournament organizers to better utilize partnership with anglers to assess angling quality and bass populations. (1.A.4, 1.A.5)

    i. Develop a pilot reporting process at Lake Pleasant or Roosevelt Lake.

8. Renovate selected waters to remove nonnative, undesired and unplanned for fish species and restock with target species to increase angler recreation, angler satisfaction, reduce fisheries conflicts, or achieve recovery objectives. (1.A.4, 1.B.1)

    i. This includes planning and renovation of Coconino and Ashurst lakes.

9. Assess stocking regime needs at each region and provide stocking requests to hatchery project staff. (1.A.1, 1.A.2)

10. Improve or manage public and/or angler access at up to six waters to optimize angler use of sportfish waters. (1.B.2, 1.B.3, 2.B.8)

11. Assess and develop management frameworks to optimize angler use for species and water bodies through Commission Order 40. (1.A.3, 1.A.6, 1.B.1, 1.B.2)

    i. Utilize information from population surveys, creel surveys, responsive management surveys and local input to formulate management concepts to maintain and enhance diversity of angling opportunities or develop regulatory proposals.
    ii. Utilize lake/water management plans to inform and document management strategy concepts.

12. Develop watershed-based fisheries management approaches for the Verde River watershed. (1.A.2, 1.A.3, 1.A.4, 1.A.5, 1.B.1, 2.D.2)

    i. This includes collaborating with University of Arizona graduate student who is assembling databases and providing process framework.

13. Develop lake/water management plans for up to 12 high priority sportfish waters. (1.A.3, 1.A.5, 1.B.6)

    i. This includes Rainbow, Show Low, Fool Hollow, Becker, Long Lake complex, City Reservoir, Watson, Willow, Alamo, Arivaca, Roosevelt, and Canyon Creek.

14. Improve fish habitat targeted at a minimum of seven waters, to optimize angler use at habitat limited waters. (1.A.1, 1.A.4, 1.B.1)

    i. This includes Lake Havasu, Lake Mohave, Canyon Lake, Lynx Lake, Fool Hollow Lake, Show Low Lake, Lyman Lake for warm water fishes.
    ii. This includes Scotts Reservoir, Tonto Creek, Canyon Creek, Silver Creek. For cold water fishes.

15. Develop and implement landscape scale habitat improvements to facilitate improvements in stream or reservoir habitat for sportfish. (1.A.1, 1.A.4, 1.B.1)

    i. This includes Mogollon Stream Habitat Improvement efforts (fluvial geomorphology), and includes evaluation, planning, and funding-dependent implementation at Tonto Creek, Christopher Creek, and/or Canyon Creek.

16. Develop popular and/or technical reports summarizing monitoring, and/or fish management investigations. (1.A.1, 1.A.2, 1.A.5)

17. Conduct or assist with a target of 18 fishing clinics to recruit and retain anglers. (1.B.3)

    i. In coordination with Aquatic Education activities, conduct specialized or special needs fishing clinics.

18. Meet with and/or present fisheries related talks at club meetings, workshops, public meetings, regional roundtables, or other public events to promote recruitment and retention of anglers in each region. (1B.1., 1.B.3, 1.B.8 2.D.1, 2.D.3)

19. Develop partnerships with agency and non-agency personnel necessary to optimize angling in each region. (1.A.5, 2.D.1, 2.D.2, 2.D.3)

20. Refine and implement Hazard Analysis and Critical Control Point (HACCP) plans for fish survey and fish management procedures at each region. Deploy HACCP planning training among other projects or subprograms to protect sportfish habitats. (1.A.1.)

Hatcheries

1. Annually produce and deliver (including purchase or trade) Cold Water sport species to fulfill management (maintenance, restoration, and enhancement) requests providing recreation angling opportunities. (1.B.1, 2.C.4)

    i. Produce or acquire rainbow trout, Apache trout, brown trout, brook trout, cutthroat trout, Gila trout, and arctic grayling to meet sportfish management requests.
    ii. Target coldwater stocking at 116 waters, as requested by sportfish management.
    iii. Target production and delivery at 3.0 million fish.

2. Annually produce and deliver (including purchase or trade) Warm Water and Cool Water sport species to fulfill management (maintenance, restoration, and enhancement) requests providing recreation angling opportunities. (1.B.1, 2.C.4)

    i. Produce or acquire largemouth bass, smallmouth bass, sunfish, channel catfish, walleye, and roundtail chub to meet sportfish management requests.
    ii. Target warm water stocking at 79 waters, as requested by sportfish management.
    iii. Target production or acquisition and delivery at 3.0 million fish.

3. Annually produce and deliver native aquatic nongame species to fulfill management requests for conservation, restoration, enhancement, recovery, research activities. (1.B.1, 2.C.4)

    i. Includes production of Colorado pikeminnow, razorback sucker, roundtail chub (including brood stock development), spikedace and loach minnow, little Colorado spinedace, and leopard frogs.

4. Provide fish health services to fish production facilities with primary focus on Department operations. Provide diagnostic services field management assessments with fish kills, base line surveys, and training. Coordinate with Arizona Department of Agriculture State Veterinarian, Federal Agencies (USFWS and USDA APHIS), other states, and interstate organizations on inventory, use of therapeutics, and regulated fish diseases. (1.A.2; 2.C.4)

5. Develop partnerships with agency and non-agency personnel necessary to optimize fish production to meet fish management objectives. (1A5, 2D1, 2D2, 2D3)

6. Monitor production at state fish hatcheries to maintain and improve efficiency using the Department's Hatchery Management System (HMS). (1.A.2, 1.B.1, 2.C.4)

7. Maintain culture facilities to ensure efficient operations and production. This includes capital improvements to residences, hatchery structures, equipment, water conveyance system, production containers, roadways, water treatment features, visitor areas and physical grounds. (2.A.3)

8. Implement Hazard Analysis and Critical Control Point (HACCP) plans and control protocols for receipt and delivery of hatchery products. (1.A.1.)

9. Evaluate, plan, and secure funding to improve warm water fish production at Bubbling Ponds Hatchery and cold water fish production at Silver Creek Hatchery. (1.A.4, 1.B.1, 1.B.3)

Water Quality

1. Maintain hatchery compliance with Federal (Clean Water Act) and State (Water Quality Standards) mandates through permit negotiation, sample collection, analysis (includes laboratory certification) and reporting. (1.A.2; 1.A.4; 1.A.5, 2.D.2; 2.D.3)

    i. This includes the Department's Page Springs, Tonto Creek, and Canyon Creek hatcheries as permitted facilities.
    ii. This includes the Department's Bubbling Ponds, Sterling Springs, and Silver Creek hatcheries, managed using Best Management Practices.

2. Monitor and analyze surface waters, fish tissues, and sediments that document and define aquatic environmental conditions. (1.A.1; 1.A.2; 1.A.4; 1.A.5, 1.B.8; 1.B.9., 2.D.1; 2.D.2; 2.D.3)

    i. This includes coordination with Arizona Department of environmental Quality, Arizona Department of Health Services, US Environmental Protection Agency, and US Fish and Wildlife Service.
    ii. This includes monitoring and evaluating lake environmental conditions to determine if particular environmental factors may trigger Golden Alga toxin outbreaks.
    iii. This includes assisting with the implementation of the Salt River Lakes Alga Response Plan.

3. Conduct resource damage and fish kill investigations that include chemical, physical and biological components. (1.A.1; 1.A.2; 1.A.4; 1.A.5, 1.B.8; 1.B.9., 2.A.3., 2.D.1; 2.D.2; 2.D.3)

    i. These are event responses, and can occur at unpredictable levels and frequencies.

4. Protect and enhance aquatic wildlife through the development of appropriate water quality standards and regulations. (1.A.2; 1.A.3; 1.A.5, 2.D.1; 2.D.2; 2.D.3.)

    i. The Department collaborates with the Arizona Department of Environmental Quality in triennial reviews of the State's standards.
    ii. The Department collaborates with the Arizona Department of Water Quality and US Environmental Protection Agency to evaluate changes to rules and regulations applicable to water quality.

5. Protect and enhance wildlife through the development of appropriate water quality standards and regulations.

6. Refine and implement HACCP plans and control protocols for water quality surveys. (1.A.1.)

Urban Fishing

1. Cooperate with municipalities to provide and manage convenient sport fishing opportunities in public park lakes and ponds. Develop and maintain partnership agreements to collaboratively address lake management, fish management, and public access issues to meet public needs for fishing recreation in an urban setting. (1.A.3, 1.A.4, 1.A.5, 1.B.1, 1.B.2, 1.B.6, 2.A.1, 2.C.4, 2.D.1, 2.D.2, 2.D.3)

    i. Maintain 20 lakes currently enrolled in the Urban Fishing Lakes project.
    ii. The Department targets the addition of one lake or water per year.

2. Monitor and investigate limnological and environmental conditions, monitor fish survival and angler success, and conduct angler surveys at Urban Fishing project waters. Provide technical support in lake management and planning. (1.A.1, 1.A.2, 1.A.5, 1.A.6, 1.B.2, 2.A.4, 2.C.1, 2.D.3)

3. Manage for optimal sport fishing opportunity by contracting for the regular stocking of catchable rainbow trout, channel catfish and sunfish by private fish growers. Develop and administrate contracts to meet annual Urban Fish project stocking objectives. Inspect all fish stockings and document contractor performance.(1.A.1, 1.A.3, 1.A.6, 1.B.3)

    i. Produce or acquire rainbow trout, channel catfish, and sunfish to meet sportfish management requests.
    ii. Target stocking at 20 waters within Urban Fishing function.
    iii. Target acquisition and delivery at 65,000 cold water and 107,000 warm water fish, and anticipate elevated needs based upon entry of new waters into the project.
    iv. Maintain, and as necessary augment, resident warm water fish communities in Urban Fishing Lakes.

4. Conduct informational and promotional activities that explain the Urban Fishing project, present fish management issues, and encourage participation in fishing opportunities to the angling and general public. Educate and inform the public about sport fishing opportunities using informational materials, signage and various media outlets. (1.B.1, 1.B.3, 1.B.9, 2.A.3, 2.A.4, 2.C.2, 2.C.3)

5. Evaluate the results of fish management and educational activities through surveys and other evaluation methods to ensure project performance. (1.A.1, 1.A.2, 1.B.1, 3.A.5)

6. Cooperate with law enforcement agencies to ensure acceptable angler compliance levels are achieved. (1.A.5, 2.C.4)

7. Cooperate with municipalities to provide and manage convenient sport fishing opportunities in public park lakes and ponds. Develop and maintain partnership agreements to collaboratively address lake management, fish management, and public access issues to meet public needs for fishing recreation in an urban setting. (1.A.3, 1.A.4, 1.A.5, 1.B.1, 1.B.2, 1.B.6, 2.A.1, 2.C.4, 2.D.1, 2.D.2, 2.D.3)

8. Refine and implement HACCP plans and control protocols Urban Fish management activities. (1.A.1.)

Aquatic Invasive Species

1. Develop, revise, and implement plans to address aquatic invasive species. (1.A.3, 1.A.4, 1.B.2)

    i. Raise public awareness of the public by implementation of communication strategies.
    ii. Anticipate aquatic invasive species threats, and implement and revise as necessary prevention strategies for aquatic invasive species.
    iii. Develop rapid response strategies for aquatic invasive species.
    iv. Develop, as needed, management strategies for aquatic invasive species.
        a. This includes development of a Quagga mussel response plan.
        b. This includes implementation of the Golden Alga response plan.

2. Coordinate with local, state, and federal agencies in Arizona and neighboring states to deploy aquatic invasive species strategies. (1.A.5)

LINKAGES TO OTHER OPERATIONAL PLANS

Watercraft Program:
The Sportfish subprogram has a programmatic connection to the Watercraft subprogram. Many anglers are boaters as well, and boating access in critically important to anglers. With growing

populations, competition for space among watercraft users (anglers and non-anglers) is a growing issue for fishermen. The Watercraft subprogram identifies key approaches to serve the boating public, maintain the safety of boaters, and assure and improve access for boaters, as well as approaches that are important to anglers. Some of the more significant linkages are listed below.

- Coordination to improve and ensure access for anglers to sportfishing waters. (1.B.2)
- Coordination to enhance the safety of the boating public, including anglers. (1.B.2)

Off Highway Vehicle Program:
The Sportfish subprogram has a programmatic connection to the Off Highway Vehicle subprogram, specifically as the use of off highway vehicles can influence the quality of aquatic habitats. Some of the more significant linkages are listed below.

- Habitat protection for key riparian areas and stream habitats. (1.A.4)

Business Administration Program:
The Sportfish subprogram is dependent upon the Business Administration program to provide critical administrative support. The Business Administration program provides key approaches necessary to staff the program, provides procurement, financial, information technology, and other services. Some of the more significant linkages are listed below.

- Executive leadership
- Legislative guidance and support
- Legal advice and compliance
- Human Resources and personnel training
- Fiscal and Financial infrastructure
- Procurement
- Fleet services
- License marketing
- Information Systems Technology
- Risk Management
- Rules and regulation development
- Planning support
- Responsive Management expertise
- Audit support
- Quality improvement

Game Subprogram:
The Sportfish subprogram has a programmatic connection to the Game subprogram, as both have an opportunity to address customers interested in wildlife associated recreation. The Game subprogram identifies key approaches that parallel the Sportfish subprogram for recruitment and retention of participants, and deployment of key conservation messages. The two subprograms can coordinate to optimize hunting and fishing opportunity in concert with the other. Some of the more significant linkages are listed below.

- Recognize the compatible interests of customers, and seek to synergize recruitment and retention jointly. (1.B.1)

- Collaborate in the development of waterfowl habitat improvements to optimize benefits for both waterfowl and sport fish resources. (1.A.4)
- Coordinate on necessary access restrictions for waterfowl to minimize, to the extent possible, effects on sportfishing access. (1.A.4)
- Work together to deploy messages regarding aquatic invasive species. (1.A.4)
- Collaborate on landscape scale habitat improvements to optimize benefits to both terrestrial and aquatic habitats. (1.A.4)

Nongame Subprogram:
The Sportfish subprogram has a significant programmatic connection to the Nongame subprogram, as both must work closely to determine appropriate uses for aquatic habitats in Arizona. To the extent allowable by funding source regulations, personnel work cooperatively in all levels of management for the subprograms, including planning and implementation of activities in the field. Most operational approaches taken by the Sportfish subprogram that are directly connected to the Nongame subprogram are described above. Some of the more significant linkages are listed below.

- Collaborate in developing a statewide fisheries management plan (1.A.4)
- Collaborate in developing water shed based fisheries management approaches (1.A.4)
- Assist in removing non-native, undesired, and unplanned for species from aquatic habitats as needed for conservation or restoration purposes. (1.A.4)
- Promote awareness of aquatic nuisance species, prevention, rapid response, and management. (1.A.4)
- Assist in revising Commission Orders 41 and 42 (aquatic amphibians and reptiles; crustaceans and mollusks)
- Collaborate and partner in implementing native sport fish recovery and conservation. (1.A.4)
- Evaluate potential impacts to native fishes from proposed sport fish stockings (EA Checklist reviews) (1.A.4)
- Coordinate requests for propagation of and/or holding of native fishes and amphibians using our state hatchery facilities for conservation and restoration efforts(1.A.4)
- Collaborate on Fish Habitat Partnerships (National Fish Habitat Action Plan, Western Native Trout Initiative) (1.A.4)
- Collaborate and partner on habitat enhancements at a watershed scale (1.A.4)
- Collaborate and partner on conservation of native wildlife on hatchery properties (Page springsnail, gartersnakes, etc) (1.A.4)
- Uses of hatchery facilities as watchable wildlife sites (1.B.1)
- Collaborate on implementation of State Comprehensive Wildlife Conservation Strategies (Wildlife Action Plans) as they relate to aquatic habitats (1.A.4)
- Collaborate on Bald Eagle management, particularly are it relates to fishing. (1.A.4)
- Collaborate on actions related to crayfish and invasive snails and mussels (1.A.4)

Information Project:
The Sportfish subprogram has a significant programmatic connection to the Information project, as both must work closely to disseminate messages about sportfishing opportunities and sportfish

conservation. The Information project provides key strategies to retain current anglers and to recruit new anglers and to deploy conservation messages. Most operational approaches taken by the Sportfish subprogram that address recruitment and retention of anglers are deployed through the Information project. Some of the more significant linkages are listed below.

- Collaborate and continue angler recruitment and retention outreach and marketing campaign (Fish Arizona!). (1.B.3)
- Develop multi-dimensioned campaign to reduce/prevent illegal transport and stocking of fish by public. (1.A.4, 1.B.2, 1.B.9)
- Implement communication strategies to raise awareness and elicit behaviors targeted at preventing the spread of aquatic nuisance species (Stop Aquatic Hitchhikers!). (1.A.4, 1.B.2, 1.B.9)

Education Project:
The Sportfish subprogram has a significant programmatic connection to the Education project, as both must work closely to develop skills and entice potential anglers to take advantage of their sportfishing opportunities. The Education project presents key approaches to inform anglers, to retain current anglers, to recruit new anglers and to deploy conservation messages. Most operational approaches taken by the Sportfish subprogram that address recruitment and retention of anglers are deployed through the Education project. Some of the more significant linkages are listed below.

- Collaborate and continue angler recruitment and retention outreach campaigns (Fish Arizona!). (1.B.3)
- Deploy sportfishing education projects and fishing clinics. (1.B.1, 1.B.2)
- Deploy aquatic components of Environmental Education. (1.B.1, 1.B.2)
- Develop and deploy educational approaches to raise awareness about aquatic invasive species including Quagga mussel and elicit desired behaviors (Stop Aquatic Hitchhikers!). (1.A.4, 1.B.2, 1.B.9)
- Develop and deploy educational approaches to raise awareness and elicit desired behaviors regarding conservation of aquatic wildlife. (1.B.1, 1.B.2)
- Develop multi-dimensioned educational approaches to reduce/prevent illegal transport and stocking of fish by public. (1.A.4, 1.B.2, 1.B.9)

Law Enforcement Project:
The Sportfish subprogram has a significant programmatic connection to the Law Enforcement project, as both must work closely to develop enforceable regulations and ensure compliance. The Law Enforcement project presents key approaches to ensure compliance for conservation of sportfish resources. Most operational approaches taken by the Sportfish subprogram that address regulation and compliance are deployed through the Law Enforcement project. Some of the more significant linkages are listed below.

- Collaborate on development of Commission Order 40, rule, and statute proposals (1.A.3, 1.A.4, 1.B.8, 1.B.9)
- Collaborate on angler focused enforcement efforts for compliance with regulations, statewide and on Urban Fishing project waters. (1.A.4, 1.B.8, 1.B.9)

- Collaborate on development of Commission Orders 41 and 42. (1.A.6)
- Collaborate on rules associated with Title 5, watercraft. (2.B.9)
- Collaborate on rules associated with restricted live wildlife (Title 17, Article 4). (1.A.6)
- Collaborate on Law Enforcement strategies to interdict illegal transport and stocking of fish by public. (1.A.4, 1.B.8, 1.B.9)
- Develop Law Enforcement approaches to assess and monitor bait dealer licensees to determine possession and sale of illegal baitfish, and transportation of hitchhiking non-target species. (1.A.4, 1.B.8, 1.B.9)
- Collaborate on issuance of special licenses and permits, particularly Aquatic Wildlife Stocking Permits, White Amur Licenses, and Scientific Collection Permits – as they relate to sport fish resources. (1.A.3, 1.A.4)

Habitat Project:
The Sportfish subprogram has a significant programmatic connection to the Habitat project, as both must work closely to ensure the conservation of sport fish habitat and access to sportfishing opportunities. The Habitat project provides key approaches to conserve and improve sport fish habitat as it relates to other land and water uses, and to conserve and enhance access for anglers to sportfishing opportunities. Most operational approaches taken by the Sportfish subprogram that address conservation of habitat are addressed in the Habitat project. Some of the more significant linkages are listed below.

- Coordinate in the review of proposed land and water development projects to avoid or minimize impacts to sport fish and sport fish habitat, and to seek enhancement in sport fish habitat, access, and facilities for angler access. (1.A.4)
- Coordinate in compliance with environmental laws and regulations in sport fish management actions. (1.A.4)

Research Project:
The Sportfish subprogram has a significant programmatic connection to the Research project, which functions within the Department to develop new technologies, evaluate existing approaches, develop new approaches and inform fisheries management decisions. The Research project presents key investigations being undertaken for sportfish management. Most operational approaches taken by the Sportfish subprogram that address development of new approaches are addressed by the Research project. Some of the more significant linkages are listed below.

- Collaborate and assist with implementation as necessary research portion of the Golden Alga Response plan to assess strategies for managing fish populations within Golden alga impacted waters. (1.A.1, 1.A.2, 1.A.4)
- Collaborate on ongoing monitoring and research through USGS Grand Canyon Monitoring and Research Center on Lee's Ferry and Grand Canyon. (1.A.2)
- Monitor and advise personnel regarding ongoing efforts of the Grand Canyon Adaptive Management Work Group and Technical Work Group. (1.A.1, 1.A.2)
- Evaluation of enforcement efficiency in generation of regulation compliance behaviors. (1.A.2)

- Collaborate with University of Arizona Cooperative Fish and Wildlife Research Unit on ongoing Department sponsored northern pike control project. (1.A.2)
- Collaborate with University of Arizona Cooperative Fish and Wildlife Research Unit on ongoing Department sponsored Verde River Watershed project. (1.A.2)
- Collaborate with and support native fish propagation research functions at Bubbling Ponds State Fish Hatchery. (1.A.2)

Development Project:
The Sportfish subprogram has a significant programmatic reliance on the Development project, which supports the infrastructure necessary to produce sport fishes, provide some of our sportfishing opportunities, improve habitat for sport fishes, and facilitate access to and use of many sport fishing venues around the State. The Development project presents key approaches for facility maintenance and habitat improvement necessary for production of or conservation of sport fish. Many operational approaches taken by the Sportfish subprogram that address infrastructure maintenance and enhancement or habitat enhancement are addressed by the Development project. Some of the more significant linkages are listed below.

- Devote two work crew weeks to Apache trout barrier maintenance annually. (1.A.4)
- Devote two work crew weeks to White Mountain stream special use permit fences. (1.A.4)
- Facilitate fish habitat maintenance and improvements. (1.A.4)
- Coordinate and prioritize requests for aquatic weed harvesting or other aquatic vegetation control strategies at Arizona lakes. (1.A.4)
- Coordinate and prioritize requests for hatchery facility maintenance and enhancements. (1.A.4)
- Coordinate regarding dam maintenance for Commission owned dams and lakes that were acquired or are operated for sportfishing. (1.A.4)
- Coordinate regarding access maintenance and enhancements for anglers. (1.A.4)
- Coordinate regarding hatchery and/or other facility or infrastructure modification, construction, renovation, and support. (1.A.4)

Wildlife Areas Project:
The Sportfish subprogram has a programmatic connection to the Wildlife Areas project, as that project influences sportfishing waters and sportfishing opportunities. The Wildlife Areas project presents key approaches to retain and enhance sportfishing values and opportunities on Wildlife Areas that were acquired for or are conducive to providing sport fishing. Operational approaches taken by the Sportfish subprogram that are applicable to state wildlife areas are deployed through the Wildlife Areas project. Some of the more significant linkages are listed below.

- Coordinate to facilitate access for anglers on Wildlife Management Areas conducive to sport fishing. (1.A.3)
- Coordinate habitat enhancements on Wildlife Management Areas to improve conditions for sport fish and sport fishing. (1.A.3)
- Coordinate access restrictions to minimize impact to sport fishing opportunity when possible. (1.A.2, 1.A.3)

Watchable Wildlife Project:
The Sportfish subprogram has a programmatic connection to the Watchable Wildlife project. Sportfish subprogram facilities are conducive and amenable to interpretation of watchable wildlife, and presents significant opportunities for watchable wildlife recreation. The Watchable Wildlife project provides key approaches to wildlife associated recreation that can be deployed on Sportfish subprogram operated facilities. Operational approaches taken by the Sportfish subprogram that provide opportunity for wildlife interpretation or wildlife associated recreation are included in the Watchable Wildlife project. Some of the more significant linkages are listed below.

- Collaborate in the use of sportfish subprogram facilities (hatcheries and lakes) as watchable wildlife opportunities. (1.B.1)
- Collaborate in the use of interpretive centers at state fish hatcheries to reach a wide range of individuals interested in wildlife associated recreation. (1.B.1)